

Proceedings of TDWG, 2009

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ARCAD- Agropolis Resource Center for Crop Conservation, Adaptation and Diversity : a new open multi-function platform devoted to agrobiodiversity. Objectives and challenges

Jean-Louis Pham, Jean-Pierre Labouisse

Abstract

ARCAD, short for Agropolis Resource Center for Crop Conservation, Adaptation and Diversity, is an initiative supported by Agropolis Fondation, the Region Languedoc Roussillon (France) and several French research institutions.

ARCAD aims at setting up a new open multi-function (conservation, research and training) platform devoted to the assessment and better use of plant agro biodiversity in Mediterranean and tropical regions. ARCAD will sustain the conservation of collections of Mediterranean and tropical crop genetic resources which are currently maintained by local research institutions, and develop innovative research to analyze the diversity of these crops.

Understanding how genes, genomes and populations have been shaped by history, environment and societies is a key factor to enhance the quality and sustainability of germplasm conservation and use. The programme's scientific agenda will thus prioritize the study of history and patterns of crop domestication and adaptation as well as the analysis of key parameters underpinning adaptation and diversity structure, at various time scales, through studies of evolutionary genomics, population genetics and social sciences. The research will focus on Phylogenomics, Crop adaptation to climate change and Cereal crops in Africa.

These activities will be complemented with technological and methodological components for the conservation (DNA bank, cryopreservation) and analysis (bioinformatics, linkage disequilibrium) of crop diversity.

A major objective of the programme is also to set up a demand-oriented capacity building platform, based upon the educational facilities offered by universities in Montpellier and the development of specific training modules.

The programme will generate and use a large and extremely diverse array of datasets.

Biological, technical and legal issues about the data generation and management processes are numerous.

The ARCAD programme was jointly developed by French research institutions and universities: CIRAD (Centre de coopération internationale en recherche agronomique pour le développement), INRA (Institut national de la recherche agronomique), IRD (Institut de recherche pour le développement), Montpellier SupAgro and University of Montpellier 2, in partnership with numerous South and international institutions.

As an open platform, ARCAD will continuously seek the involvement of interested partners that are able to add value to this new programme.